Amendments To The Claims:

Please amend the claims as shown.

1 – 14 (canceled)

Claims

15. (new) A method for operating a metal strip mill train, comprising:

determining a desired flatness of the strip via a material flow model;

measuring an actual flatness of the metal strip near a discharge point of the mill train;

translating the measured metal strip flatness into flatness values;

controlling a roll stand of the mill train via a bulge model that uses the desired and actual flatness values as inputs to reduce the difference between the actual flatness and the desired flatness of the metal strip.

16. (new) The method as claimed in claim 15, wherein the actual flatness of the metal strip is measured at the discharge point of the mill train.

17. (new) The method as claimed in claim 15, wherein the actual flatness is determined as a bulge pattern.

18. (new) The method as claimed in claim 17, wherein the bulge pattern is three-dimensional.

19. (new) The method as claimed in claim 18, wherein a relative length of individual tracks of the metal strip is evaluated to determine the bulge pattern along with a variable of the individual tracks selected from the group consisting of: wavelength, amplitude and phase offset.

20. (new) The method as claimed in claim 19, wherein a laser measuring device is used to determine the desired flatness of the metal strip.

21. (new) The method as claimed in claim 20, wherein the laser measuring device is a multi-track laser measuring device.

22. (new) The method as claimed in claim 20, wherein the actual flatness of the metal strip is measured topometrically.

23. (new) The method as claimed in claim 22, wherein the values for the desired flatness are translated into values for the actual flatness using the bulge model.

24. (new) The method as claimed in claim 23, wherein the flatness values are translated online.

25. (new) The method as claimed in claim 24, wherein, the flatness values are translated online via an approximation function.

26. (new) The method as claimed in claim 25, wherein the metal strip bulge pattern based on the strip flatness is determined via the bulge model by applying an assumed temperature distribution in the transverse direction of the metal strip.

27. (new) The method as claimed in claim 26, wherein the actual flatness of the metal strip is measured by a laser measuring device.

28. (new) The method as claimed in claim 27, wherein the laser measuring device is a multi-track laser measuring device.

29. (new) The method as claimed in claim 27, wherein a flatness limit value is predefined at points to control the mill train.

30. (new) A metal strip mill train control device, comprising:

a device that measures an actual flatness of the metal strip;

a regulating unit coupled to a bulge model, the model using a device that measures the actual flatness of the metal strip and a material flow model to control a roll stand of the mill train to minimize the difference between the actual flatness and the desired flatness of the metal strip.

31. (new) The control device as claimed in claim 30, wherein the actual flatness measuring device is a laser measuring device.

32. (new) The control device as claimed in claim 31, wherein the laser measuring device is a multi-track laser measuring device.

33. (new) The control device as claimed in claim 31, wherein the bulge model is coupled to a topometric measuring system that determines a bulge pattern of the metal strip.

Claims

1. Method for operating a mill train for metal strip (1), having at least one roll stand (3), with a visible flatness (vp) of the metal strip (1) being measured at the discharge point of the mill train,
characterized in that to control the at least one roll stand using a bulge model (12), values for the visible flatness (vp) are translated into values for the intrinsic flatness (ip) and a material flow model (9) is used to determine the intrinsic flatness (ip) before a physical point for measuring flatness.

2. Method according to claim 1,
characterized in that the visible flatness (vp) is determined in the form of a bulge pattern.

3. Method according to claim 2,
characterized in that the bulge pattern is three-dimensional.

4. Method according to claim 2 or 3,
characterized in that in addition to the relative length of individual tracks (S1 to Sn) of the metal strip (1) at least one of the variables wavelength, amplitude and phase offset of the individual tracks (S1 to Sn) is evaluated to determine the bulge pattern.

5. Method according to one of the preceding claims,
characterized in that a multi-track laser measuring device (13) is used to determine the intrinsic flatness (ip).

6. Method according to one of claims 1 to 4,
characterized in that the visible flatness (VP) is measured

topometrically.

7. Method according to one of the preceding claims, characterized in that values for the intrinsic flatness (ip) are translated into values for the visible flatness (vp) using the bulge model (12).

8. Method according to claim 7, characterized in that the flatness values (ip or vp) are translated online.

9. Method according to one of claims 7 or 8, characterized in that the flatness values (ip or vp) are translated with the aid of an online-capable approximation function.

10. Method according to one of the preceding claims, characterized in that the bulge pattern of the metal strip (1) is determined using the bulge model (12) by applying a fictitious temperature distribution in the transverse direction (y) of the metal strip (1), based on its intrinsic flatness (ip).

11. Method according to one of the preceding claims, characterized in that one or more flatness limit values is/are predefined at freely selectable points to control the mill train.

12. Control device (2) for operating a mill train for metal strip (1) with at least one roll stand (3), with the control device (2) having at least one regulating unit (11), characterized in that the regulating unit (11) is coupled to a bulge model (12) to implement a method according to one of the

preceding claims, said bulge model (12) being coupled to a device for measuring the visible flatness (vp) of the metal strip (1) and a material flow model (9).

13. Control device (2) according to claim 12, characterized in that the device for measuring the visible flatness (vp) is a multi-track laser measuring device (13).

14. Control device (2) according to claim 12 or 13, characterized in that the bulge model (12) is coupled to at least one topometric measuring system to determine a bulge pattern of the metal strip (1).